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ABSTRACT

Interactive videodisc technology offers tremendous potential for enriching instruction. Although more and more videodisc technology is appearing in schools, the technology is not being utilized fully. To provide assistance for teachers, a study was conducted at the University of Florida which evaluated commercial science videodiscs and developed an instrument for assessing videodisc programs. The results of this study, published in a booklet entitled "Videodiscs in Education: Overview, Evaluation, and Activities," and summarized in this paper, can help teachers throughout the nation in the selection of videodisc resources for their curriculum. The evaluation instrument includes the following instructional features: instructor resources; student resources; indexes; customizing features; instructional strategy; content; format; system requirements; and purchasing information. After the instrument was designed and validated, 30 commercial videodiscs were evaluated. Examples of the evaluations are presented in two matrices which depict the results of various aspects of the videodisc program. (Contains six references.) (Author/MAS)

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Videodisc Evaluations

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ABSTRACT

Interactive videodisc technology offers tremendous potential for enriching instruction. Although more and more videodisc hardware is appearing in schools (Update: The Latest Technology Trends in the Schools, 1993) the technology is not being utilized fully. The minimal use is due to a number of factors, one of which has been the lack of evaluation instruments to aid teachers in the selection of appropriate commercial videodiscs.

To provide assistance for teachers, a study, funded by the Florida Department of Education, was undertaken at the University of South Florida. The goals of the study were to evaluate commercial science videodiscs and to develop an instrument for assessing videodisc programs. The results of this study can help teachers throughout the nation in the selection of videodisc resources for their curriculum.

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OBJECTIVES

The objectives of this study were twofold. First, the researchers undertook the task of designing and validating an evaluation instrument for commercial videodisc programs. This instrument is being used by educators to aid in the assessment and selection of videodisc programs.

The second objective was to evaluate several commercial videodiscs and disseminate the results. There are few, if any, publications of systematic reviews and evaluations of videodisc programs. In addition, teachers seldom have the opportunity, resources, or time to investigate the numerous videodisc programs that are flooding the school marketplace. By publishing evaluations, based on the assessment instrument, teachers have criteria for choosing appropriate instructional materials.

PERSPECTIVE AND THEORETICAL FOUNDATIONS

Videodisc instruction offers the audio and visual realism of video with the interactivity of computer-based education. Videodiscs are inexpensive, durable, and high in quality. Students and teachers can interact and control the videodiscs through the panels on the videodisc players, barcode readers, remote control units, or computers (Barron & Orwig, 1993).

Numerous studies have demonstrated the advantages of videodisc instruction. One investigation examined the effects of a science videodisc on achievement of sixth graders in a weather unit. When the same teachers taught one group of students using the videodisc and an equivalent group using textbooks, the videodisc group significantly outperformed the textbook group (McWhirter, 1991).

McNeil and Nelson (1991) completed a meta-analysis of research on the cognitive achievement effects of interactive videodisc. The results showed an overall effect size of 0.502. A significantly higher result was found when teachers implemented videodisc instruction as a supplement to traditional instruction rather than as a replacement of traditional instruction.

Another meta-analysis that focused on videodisc technology was conducted by Fletcher (1991). His findings included: (a) Interactive videodisc instruction was more effective than conventional approaches to instruction; (b) Interactive videodisc instruction was equally effective for both knowledge and performance outcomes; (c) The more the interactive features of interactive videodisc technology were used, the more effective the resulting instruction; (d) The effectiveness of interactive videodisc instruction was greater than the effectiveness of computer-based instruction.

A review of the literature conducted by researchers at the University of Oklahoma also noted that larger learning effects appear to result when multimedia or videodisc instruction is integrated with other forms of delivery and when the lessons are structured, rather than totally exploratory. They also found group-based implementation to be as effective as individualized instruction (University of Oklahoma, 1992).

METHOD AND TECHNIQUES

The evaluation instrument focuses on the instructional aspects of the videodisc materials. The instrument was designed to help teachers determine if a given videodisc program could benefit their curriculum and their students. The criteria for the evaluation was established based on the examination of numerous videodisc programs and the features they offered. Surveys and interviews with teachers who were implementing videodisc technology also contributed to the design and validation of the instrument. The criteria include the following instructional features:

Instructor Resources:	Instructor Guide, Lesson Plans, Follow-up Activities
Student Resources:	Student Manuals, Student Worksheets
Indexes:	Frames, Chapters, Barcodes
Customizing Features:	Video Report Maker, Barcode Generator, Videodisc Log
Instructional Strategy:	Tutorial, Game, Database, Demonstration, Inquiry, Simulation

Additional criteria pertinent to procurement and implementation include:

Content	Subject Areas, Audio tracks, Recommended Grade Levels
Format:	Level I, II, or III; CAV or CLV; # of disc sides
System Requirements	RAM, Software Compatibility, Disk Storage Space
Purchasing Information:	Price, Publisher, Distributors

After the evaluation instrument was designed and validated, several commercial videodiscs were evaluated. The evaluation process consisted of at least 3 independent reviews for each videodisc program. Reliability was established among the evaluators by comparison of their scores in several prototype assessments.

RESULTS

The results of the study consist of an evaluation instrument and over 30 completed evaluations. The instrument is an easy-to-use form with clear explanations of inputs and assessments. Educators find this instrument helpful in highlighting important features of videodisc programs and in offering a comparison basis between programs.

To date, the study has produced over 30 completed evaluations of commercial videodisc programs. The evaluations offer a means by which educators can obtain unbiased, detailed reviews of the products. The evaluations are published in several matrices depicting the results of the various categories. For example, the instructional strategy matrix illustrates the primary and secondary focus of the programs (see Figure 1 for an example).

TITLE	Tutorial	Game	Movie	Visual Database	Multimedia Library	Demon-stration	Inquiry	Simulation
Bio Sci II	•			•		•		
Great Ocean Rescue		•		•			•	•
Science Sleuths		•					•	•
Hurricane Hugo	•	•			•	•		

Figure 1. Instructional Strategies

The content area matrix provides information about the focus of the programs (see Figure 2 for an example).

TITLE	General Sci.	Physical Sci.	Earth Sci.	Biological Sci.	Math	Grade Level(s)
Bio Sci II	•			•		7 - college
Great Ocean Rescue	•		•	•		5-8
Science Sleuths	•	•	•	•		6-9
Hurricane Hugo	•		•			6-9

Figure 2. Science Content Areas

In total, eight matrices were constructed to provide easy-to-interpret information. Both the evaluation instrument and the evaluations have been published in a booklet entitled *Videodiscs in Education: Overview, Evaluation, and Activities*. The booklet is distributed free-of-charge by the Florida Center for Excellence in Science, Mathematics, and Technology and the Florida Center for Instructional Technology. To date, over 6,000 copies of the booklet have been disseminated to educators.

EDUCATIONAL SIGNIFICANCE

The evaluation instrument and videodisc evaluations have been well-received by educators. Their educational significance rests in the fact that an assessment tool was required to aid teachers in assessing and selecting videodisc resources for their curriculum. Prior to this study and its products, educators were forced to obtain information from videodisc vendors (which may or may not be biased), search for published reviews in the literature, request preview copies, or purchase materials *hoping* that they would meet their needs.

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